LINMA2472

2016-2017

Algorithms in data science

5.0 credits	30.0 h + 22.5 h	1q

Teacher(s) :	Blondel Vincent (coordinator) ; Delvenne Jean-Charles ; Krings Gautier (compensates Blondel Vincent) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	> http://moodleucl.uclouvain.be/course/view.php?id=7875
Prerequisites :	Some familiarity with linear algebra and discrete mathematics is required (such as given in LFSAB1101, LFSAB1102, LINMA1691).
Main themes :	The course explores questions, mainly of an algorithmic nature, regarding the challenges offered by the emergence of Big Data.
Aims :	Learning outcomes : -- AA1 : 1,2,3 -- AA3 : 1,3 -- AA4 : 1 -- AA5 : 1,2,3, 5,6 More specifically, at the end of the course the student will be able to : -- read a general or specialized literature on a specific cutting-edge theme of discrete mathematics, and summarize the key messages and results -- explain those messages to their peers in a clear and precise way -- solve mathematical problems in application to those results -- identify the possible caveats of those results and criticize the exposition chosen by the references -- relate the concepts encountered in the literature to concepts covered in other course, despite different notations or viewpoints The mathematical objectives can change from year to year. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	Oral exam with written preparation. Oral and written presentation of theory and real data analysis during the term.
Teaching methods :	In part ex cathedra, and in part presented by the students themselves based on a book chapter or other documents.
Content :	The course contents may vary from one year to another and can tackle various algorithmic questions related to storage, broadcast or analysis of massive datasets (Big Data). E.g., plagiarism detection, web pages ranking, frequent patterns detection, social networks analysis, parallel computing and storage, principles of peer-to-peer networks, etc.
Bibliography :	Variable.
Faculty or entity in charge:	MAP

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Computer Science and Engineering	INFO2M	5	-	🔍
Master [120] in Computer Science	SINF2M	5	-	🔍
Master [120] in Mathematical Engineering	MAP2M	5	-	🔍
Master [120] in Statistics: General	STAT2M	5	-	🔍